SONAR WQ01

Ref. A: AN/BQQ-5 MIP SO-212
Ref. B: AN/BSY-1 MIP 4630
Ref. C: AN/BQR-22A MIP SO-105
Ref. D: AN/BQS-15 MIP SO-569
Ref. E: AN/BQN-17 MIP SO-572
Ref. F: AN/BQA-8 MIP SO-191
Ref. G: AN/WQC-2A MIP SO-097
Ref. H: AN/BQH-1 MIP SO-034
Ref. I: Towed Array LOS INSURVINST 4730.2E
Ref. J: AN/BQH-7 MIP
Ref. K: ON/144 MIP SO-267
Ref. L: AN/WLR-9 MIP SO-205
Ref. M: AN/BQN-13A MIP SO-104
Ref. N: AN/BQS-15 MIP SO-569
Ref. O: AN/BQQ-5 FL MATRIX
Ref. P: AN/BQQ-10

Items in RED apply to all. Items in BLUE apply to BQQ-5. Items in GREEN apply to BSY-1. Items in ORANGE apply to ARCI.

A. PREUNDERWAY / UNDERWAY (BQQ-5: 1-22; BSY-1: 1-3 & 23-32; ARCI: 1-3 & 33-41)

				% Complete			
☑	**ITEMS TO BE REVIEWED AND/OR TESTED**	**Ref.**	**MRC/ OP**	**25**	**50**	**75**	**100**
	1. Review ESL/CSMP for equipment status and outstanding requisitions.						
	2. Review latest CSA/CSRR/PAT/WSR outstanding deficiency documentation.						
	3. Visually examine the SONAR equipment and look for intactness, accessibility, and operability.						
	4. Run FL's. Document TNUM and system impact.	O					
	5. Perform BQQ-5 Operability test, confidence tests.	A	M-7R				
	6. Inspect inverse compensator plate on BQQ-5	A	Q-5				
	7. Operate all modes of passive broadband and compare all contact bearings to radar and periscope bearings	A					
	8. Compare navigational inputs for course and speed between AN.BQQ-5, BQH-5(if installed), Fire Control, and online navigation system.	A					
	9. Check power reduction interlock clears at appropriate depth.	A					
	10. Monitor BQH-1 during dive to TD and compare depth to ship's depth.	H					
	11. Monitor WLR-9 throughout test period for alerts and compare with data received on passive broadband sonar	L					
	12. Conduct Rapid Operability test on WLR-9	L	R-4D				
	13. Demonstrate ability to pass information from all sensors and to AUX sonar system and conduct performance test	K					
	14. Launch an SSXBT using ship's OP's. Transmit data to fire control and save copy of data	J					
	15. Conduct BQS-15 Performance test, Operability test	D	R-1W				
	16. Monitor all BQA-8 hydrophones and bands for proper operation.	F					
	17. Perform BQA-8 operability test	F	Q-3				
	18. Perform BQR-22A functional test	C	R-4				

☑	ITEMS TO BE REVIEWED AND/OR TESTED	Ref.	MRC/ OP	% Complete 25	50	75	100
	19. Monitor displays for various BQQ-5 inputs of Sphere II and OMNI I channel through the patch panel	C					
	20. Deploy TB-16 array at Test Depth per SSM OI						
	21. Deploy TB-23 array at Test Depth per SSM OI						
	22. Verify proper operation of all towed array displays and various modes.						
	23. Deploy and retrieve both towed arrays at test depth using appropriate OP guidelines. Power up array using BSY-1 and check of proper operation.	B	R-25				
	24. Check for proper operation of all passive modes of AN/BSY-1	B	R-23 R-27				
	25. Test navigational inputs to AN/BSY-1	B					
	26. Check for Local Sound Velocity using AN/BSY-1	B	R-29				
	27. Monitor WLR-9 throughout test period for alerts and compare with data received on passive broadband sonar	B					
	28. Conduct Rapid Operability test on WLR-9	B	R-32D / R-7D				
	29. Launch an SSXBT using ship's OP's. Transmit data to fire control and save copy of data	B	A-4				
	30. Test interface between patch panel and all applicable equipment.	B	R-4				
	31. Test playback/record capabilities of installed recording system.						
	32. Perform BQR-22A functional test	C	R-4				
	33. ARCI Verify P/S redundancy	P	M-1R / M-2R				
	34. ARCI Battery Capacity Test	P	S-1R				
	35. ARCI Operability Test (TI-02)	P	R-9				
	36. ARCI Towed Array operational verification	P	R-5 / R-20				
	37. ARCI Workstation to Ethernet/GiGE failover	P	R-17 / R-31				
	38. ARCI Towed Array Operational Verification	P	R-2 / R-4 / R-5 / R-7 / R-8 / R-9 / R-15 / R-20 / R-21 / R-22				
	39. ARCI Sphere Operational Verification	P	R-27 / R-32				
	40. ARCI Test SVM Operability	P	R-12				
	41. ARCI Inspect All Array Dental Charts	P					

B. UNDERWAY / TRANSMIT ACTIVE SONAR (BQQ-5: 1-11; BSY-1: 12-18; ARCI: 19-24)

☑	ITEMS TO BE REVIEWED AND/OR TESTED	Ref.	MRC Legacy/ ARCI	% Complete 25	50	75	100
	1. Test BQQ-5 active system in all modes and sub-modes of operation at all power levels	A					
	2. Compare active ranges and bearings to radar and/or periscope bearings	A					
	3. Test Operate BQN-17 sounding set	E	R-2				
	4. Monitor BQN-17 and BQS-15 during outbound transit and compare depth readings. Readings should be within 2 feet of each other.	E D					
	5. Monitor BQN-17 while passing 100FM curve and verify system continues to track (ship's speed should be no greater than 5kts.)	E					
	6. Operate IAW ship's operating procedures and monitor throughout test period and compare soundings to navigation charts	E					
	7. While at TD energize fwd BQN-13A and monitor on WLR-9.	M					
	8. While at TD energize aft BQN-13A and monitor on WLR-9.	M					
	9. Test Operate BQS-15 Bottom Sounder	D	R-2W				
	10. Test all BQS-15 active modes while ship goes to PD	D	R-2W				
	11. Transmit on all WQC-2 transducers monitoring each transmission through the WLR-9. Insure BQQ-5 is muted during transmission time.	G					
	12. While at TD energize fwd and aft BQN-13A and monitor on WLR-9.	M					
	13. Test all modes of BSY-1 bottom sounder forward and aft	B	R-11 / R-14				
	14. Test all modes of BSY-1 top sounder	B	R-11 / R-14				
	15. Test using all modes of BSY-1 MF Active	B	R-26 / R-11				
	16. Test using all modes of BSY-1 HF Active	B	R-26 / R-10 R-28 /				
	17. Test using all modes of BSY-1 UWC. Monitor on GPD-111 or WLR-9	B	R-6 / R-16				
	18. Test all BSY-1 active transducers/arrays using 1021 and 1035 FL tests	B	S-29R				
	19. ARCI MF Active Operability Test	P	R-11 / R-28				
	20. ARCI Test Active Subsystems	P	2W-7R				
	21. ARCI Test Sphere and HF Active Transmission Units	P	Q-6R / Q-11R R-10 /				
	22. ARCI Sail Array Signal Conditioner	P	S-12R / S-27R				
	23. ARCI HF Projector Transmit status	P	S-15R /				
	24. ARCI MPC Bottomsounding Operability	P	R-14				

C. INPORT (BQQ-5: 1-10; BSY-1: 3,4,6; ARCI: 3,4,6 & 11-12)

☑	ITEMS TO BE REVIEWED AND/OR TESTED	Ref.	MRC/ OP	% Complete 25	50	75	100
	1. Measure BQQ-5 one-point grounds	A	S-9R				
	2. Measure BQH-1 transducer and cable insulation resistance	H	S-2R				
	3. Measure LF hydrophone insulation and resistance and capacitance on WLR-9	L	S-1R				
	4. Measure HF hydrophone insulation and resistance and capacitance on WLR-9	L	S-2R				
	5. Measure BQN-17 transducer cable insulation	E	Q-2R				
	6. Measure Transducer insulation resistance on BQN-13A	M	S-1R				
	7. Measure BQS-15 insulation resistance and continuity of projectors AZ/DE drive motors and 400hz reference to unit 3	D	S-1				
	8. Measure BQA-8 hydrophone DC resistance and insulation	F	Q-5				
	9. Measure WQC-2 Transducer impedance	G	S-1R				
	10. Measure WQC-2 Insulation resistance of transducer cable	G	S-1R				
	11. Measure Sound Velocity Transducers insulation and resistance	P	S-15R				
	12. Measure NM Hydrophones insulation and resistance	P	S-11R				

D. OPEN AND INSPECT (BQQ-5: 1, 2, 4; BSY-1: 1-3; ARCI: 1,2,5)

☑	ITEMS TO BE REVIEWED AND/OR TESTED	Ref.	MRC/ OP	% Complete 25	50	75	100
	1. One CDC						
	2. WLR-9 unit 1						
	3. SDC in CSES and Middle Level						
	4. Compensators unit 7						
	5. SIU Unit 4010						
	6.						

AN/BQQ-5 FL Matrix

Notes:

Inverse Comp Alignment (FL 6306) tolerance is + 0.20° of displayed requirement for AZ and + 0.10° D/E.

Compensator Alignment (FL 6307) tolerance is + 0.02° of displayed requirement for AZ and D/E.

BDI BAL is a prerequisite to this FL.

Units	BQQ-5D (ALL)	BQQ-5E (ALL)	MRC	AFFECT ON OPERATION
1,3,124	2901	2901	M-4R	All units affected; No operational modes available- PM/FL Test Tgt.
1,3,124	4160	4160	S-6R	All units affected; No operational modes available- Xducer Path Test
111/112	3100	3101	M-4R	All units affected; No operational modes available- Act/Pas F/E/C
1 to 4	4140	4140	S-6R	-Gain/Noise SA xducer Impedance & xmit/receive relay
111	3301	3301	M-2R	All units affected; No operational modes available- Pas F/E/C
112	3401	3401	M-2R	All units affected; No operational modes available- Act F/E/C
126(U)	3501	N/A	R-9	All Modes Available
126(L)	3502	N/A	R-9	All Modes Available
7	3703	3703	M-13R	All units affected; No operational modes available- Test LCA's
7/118	3801	3801	M-13R	All units affected; No operational modes available- BDI / ATF Circuits
6	4024	4024	2W-7R	All units affected; No operational modes available- Phase shifting
1 to 4	4180	4180	S-6R	-Gain/Noise SA xducer Impedance & xmit/receive relay
120	4501	4501	S-4	No PDR Data Available
6	4609	4609	2W-7R	All units affected; No operational modes available- All dummy load test
118	4801	4801	M-2R	All units affected; No operational modes available- Ctrl scan function
118	4811	4811	M-2R	All units affected; No operational modes available- 115/116 interface
118	4812	4812	M-2R	All units affected; No operational modes available- WLR-9 interface
118	4871	4871	M-2R	All units affected; No operational modes available- All manual test
118	4874	4874	M-2R	All units affected; No operational modes available- TRI-ASP interface
177	4901	4901	S-4	No PDR Data Available
124	5201	5201	W-3R	All units affected; No operational modes available- PM/FL operability
124	5271	5271	M-4R	All units affected; No operational modes available- Unit 124 panel lights
170	5273	5273	M-12R	Units 5,7,122,123&131 Affected;Loss of analog trkr data
183	5274	5274	M-12R	Units 5,7,122,123&131 Affected;Loss of analog trkr data
123	5310	5301	M-12R	Units 5,7,122,123&131 Affected;Loss of analog trkr data
168	5330	5301	M-12R	Units 5,7,122,123&131 Affected;Loss of analog trkr data
169	5350	5301	M-12R	Units 5,7,122,123&131 Affected;Loss of analog trkr data
171	5370	5301	M-12R	Units 5,7,122,123&131 Affected;Loss of analog trkr data
115	5401	5401	M-2R	All units affected; No operational modes available- Passive Processor
113	5501	5501	M-2R	All units affected; No operational modes available- Passive Beamformer
113/131	5510	5510	M-13R	All units affected; No operational modes available- 113/131 interface
116	5701	5701	M-2R	All units affected; No operational modes available- SCI/power/timing
114	5801	5801	M-2R	All units affected; No operational modes available- Active Beamformer
5	5901	5901	M-12R	Units 5,7,122,123&131 Affected;Loss of analog trkr data
131	6050	6050	M-13R	All units affected; No operational modes available- Complete TRI-ASP
131	6150	6150	M-13R	All units affected; No operational modes available- Complete TRI-ASP
811	6201	6201	M-5R	No Towed Array or Hull Array Data
6/118	6306(2)	6306(2)	M-4R	All units affected; No operational modes available- Unit 6 syncro align.
7/118	6307(3)	6307(3)	M-4R	All units affected; No operational modes available- Unit 7 syncro align.
122	6601	6601	M-12R	Units 5,7,122,123&131 Affected;Loss of analog trkr data
122	6301	6301	M-2R	All units affected; No operational modes available- 6,7& 118 interface